



NOTES

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WINTER 2010

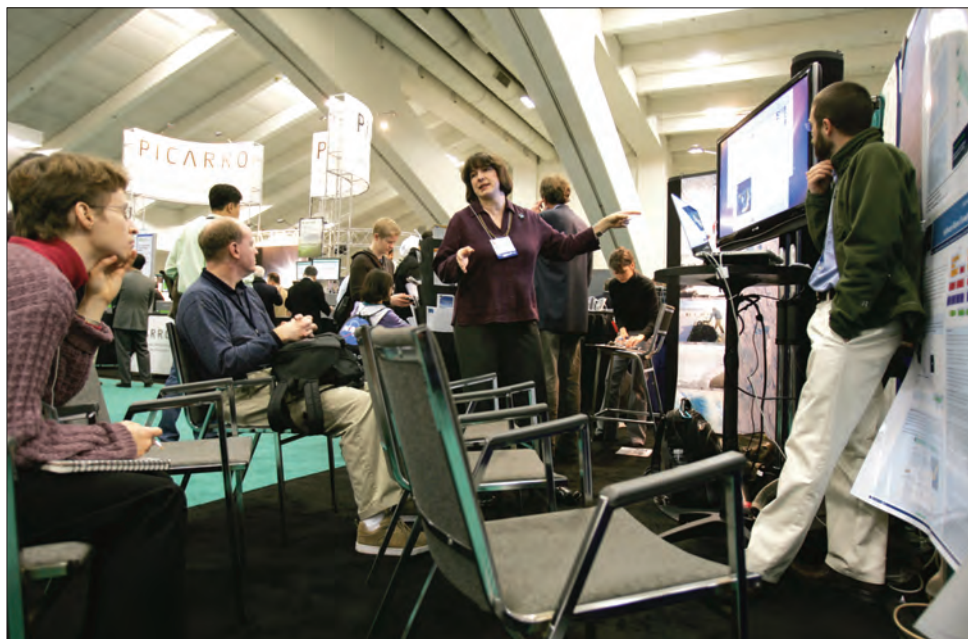
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NSIDC Researchers Contribute to COP15 Climate Conference

NSIDC scientist Shari Gearheard spoke at the United Nations Climate Change Conference in Copenhagen (COP15) in December. Gearheard delivered a lecture on “Using Traditional Knowledge in Climate Change Decision Making” at the Inuit Circumpolar Council official side event on 12 December 2009. She also participated in “Inuit and Arctic Indigenous Peoples Day” on 16 December.

NSIDC scientist Richard Armstrong participated in a six-person task force who produced “Melting Snow and Ice: A Call for Action,” a report on the status of Earth’s glaciers and ice caps. Former U.S. Vice President Al Gore and Norway Foreign Minister Jonas Gahr Støre presented the report at a COP15 side event. Download the report at the Norwegian Government Web site (<http://www.regjeringen.no/callforaction/>).



NSIDC staff Mary Jo Brodzik and Brendan Billingsley demonstrate the capabilities of the Searchlight engine at the 2009 American Geophysical Union meeting in San Francisco, California. (Credit: Steve Miller)

Searchlight Changes Online Search at NSIDC

NSIDC is reducing the distance between its users and its cryospheric data holdings, thanks to an evolution in NSIDC data architecture called the Searchlight engine. Released last month, Searchlight is a change from the cumbersome “Search and Order (Wait and Download)” user access model to a quicker and more intuitive “Discovery and Access” model.

Searchlight powers the new Beta Advanced Data Search Tool, which delivers data downloads immediately. The user controls on-the-fly reformatting, reprojection, and subsetting of the data. In this way, Searchlight delivers only what the user wants, and how they want it. The sooner users can obtain what they want, in a format they can quickly understand and use, the more time they have to devote to their own scientific investigations.

The new Beta Advanced Data Search Tool currently includes thirteen of NSIDC’s most popular data sets. NSIDC plans to add more data holdings to the tool later this year. Please visit and provide feedback on the Beta Advanced Data Search Tool at the Searchlight Web site (<http://nsidc.org/searchlight/>).

NSIDC is developing a second application that leverages Searchlight. The Services for the Analysis of the Greenland Environment (SAGE) application reuses Searchlight components wherever possible. SAGE adds analysis capability and a unique interface for specific Greenland data sets, and demonstrates that Searchlight can be reused to speed up development of other NSIDC applications. The Searchlight engine handles all of the search and preparation of data for SAGE. Currently in an alpha development phase, SAGE is scheduled to be made publicly available later this year.



Top: Martin Truffer, of the University of Alaska, tows a radar sled across Röhss Glacier. (Credit: Ted Scambos); **Top right:** A faint crescent moon rises over the ice during a fiery after-storm sunset in the Prince Gustav Channel. During the second part of the LARISSA Project, the team traveled aboard the research vessel N.B. Palmer and navigated through stormy seas and around treacherous ice floes to set up ground monitoring instruments. (Credit: Ted Scambos); **Right:** Truffer, Erin Pettit of the University of Alaska, and NSIDC Lead Scientist Ted Scambos kill time in the tent while waiting for a break in the weather. (Credit: Ted Scambos)



NSIDC Scientists on Expedition to the Larsen Ice Shelf

NSIDC Lead Scientist and Antarctic expert Ted Scambos is one of a group of scientists visiting the Larsen Ice Shelf region in Antarctica to study the effect of ice shelf collapse on Antarctic glaciers. The expedition, which began in December, is part of the National Science Foundation-funded Larsen Ice Shelf System, Antarctica (LARISSA) Project. The project aims to explore the causes and impacts of ice shelf collapse in a fast-warming region of Antarctica.

In 2002, a huge section of the Larsen Ice Shelf disintegrated in the largest such event ever recorded. This collapse had a major impact on the region, affecting ice flow, ocean circulation, and the marine ecosystem. In subsequent years, similar ice shelf disintegrations have occurred several times elsewhere along the Antarctic Peninsula. The LARISSA project researchers hope to gain insight into the factors that lead to ice shelf collapse, and better understand the environmental impact of such break-up events. As the region continues to warm, break-ups are expected to become more frequent.

During the first part of the expedition, Scambos, NSIDC researcher Rob Bauer, and University of Alaska scientist Erin Pettit conducted a radar survey of the Bruce Plateau. The second part of the project is ongoing. For this part, a new team, consisting of Scambos, Pettit, NSIDC researcher Terry Haran, University of Alaska researcher Martin Truffer, and Australian electronics consultant Ronald Ross, is

based on a research ship and travels by helicopter to set up monitoring systems at key points on glaciers that feed into the remaining Larsen Ice Shelf. The systems, known as automated meteorology-ice-geophysics systems (AMIGOS), were designed by Ross, and feature weather instruments, GPS units, and cameras. The stations will continue to transmit data and photographs back to the scientists through satellite telephone uplink long after the fieldwork is over. The researchers hope these data will reveal how glaciers along the Antarctic Peninsula are responding to ice shelf collapse.

The team is posting updates and photographs about the project on their blog, “On Thin Ice” (<http://iceshelf.wordpress.com>). Additional information about the project is available on the LARISSA Project Web site (<http://www.hamilton.edu/news/exp/LARISSA/index.html>)



Pettit and NSIDC researcher Rob Bauer conduct a radar traverse on Bruce Plateau.

New Google Earth KML File: A Climate Change Tour of Cold Places

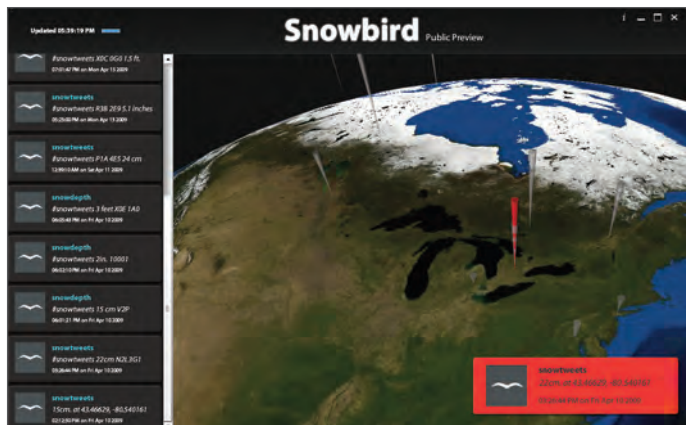
In collaboration with the University of Colorado at Boulder School of Education, NSIDC has created and released a new Google Earth movie called *A Climate Change Tour of Cold Places*. The tour focuses on snow and ice, and explains how these play critical roles in the changing climate. The tour is geared towards a K-12 audience with down-to-earth examples and terms that are simple to understand. Students get a closer look at what ice and snow tell us about how climate is changing, especially in regions near the Earth's North and South poles. It includes interviews with NSIDC scientists Ted Scambos and Julienne Stroeve as well as a discussion of glaciers and permafrost and an animation of an ice shelf breaking up. The KML file is available on the NSIDC Virtual Globes Web page (http://nsidc.org/data/virtual_globes/).

The Snowtweets Project

Cryosphere researchers at the University of Waterloo, Canada, invite you to contribute snow depth measurements using the social media tool Twitter. The Snowtweets Project aims to crowdsource snow depth measurements using Web 2.0 technologies. A goal of this project is to engage the public by visualizing contributions on a number of platforms. Using KML or GeorSS feeds, measurements can be animated by time in Google Earth using the time tool. Alternatively, a specialized three-dimensional visualization tool, Snowbird, has been developed to highlight relative depths worldwide using a simpler interface. Contributed measurements will be used to ground truth snow depth estimates derived from satellite imagery.

You can contribute snow depth measurements by sending or “tweeting” the following message using Twitter: **#snowtweets depth at location** (*depth* is a measurement in centimeters or inches.; *location* can be a postal/ZIP code, address or lat/long coordinates in decimal degrees.) To contribute, visit the Twitter Web site (<http://www.twitter.com>).

Raymond Cabrera, Richard Kelly and Josh King at the University of Waterloo are coordinating the project. More information is available at the Snowtweets Web site (<http://snowtweets.org/>).



Snowtweets relative snow depths are visualized on a three-dimensional visualization tool called Snowbird.

Antarctic 1 km DEM Now Available

The *Antarctic 1 km Digital Elevation Model (DEM) from Combined ERS-1 Radar and ICESat Laser Satellite Altimetry* is now available. The data set combines measurements from the European Remote Sensing Satellite-1 (ERS-1) Satellite Radar Altimeter (SRA) and the Ice, Cloud, and land Elevation Satellite (ICESat) Geosciences Laser Altimeter System (GLAS). The ERS-1 data are from two long repeat cycles of 168 days, initiated in March 1994. The GLAS data are from 20 February 2003 through 21 March 2008. The data include the DEM and an error map.

For more information about this new data set, please see the Antarctic 1 km DEM page (<http://nsidc.org/data/nsidc-0422.html>).

ICESat/GLAS Updates

Reprocessing to Release-31 continues for ICESat/GLAS data. Release-31 includes all fifteen products, GLA01 to GLA15, though not all products are available for all laser time periods. The following campaigns are available, in the order received at NSIDC:

| Laser | Time Period |
|----------|--------------------------|
| Laser 3G | 2006-10-25 to 2006-11-27 |
| Laser 3F | 2006-05-24 to 2006-06-26 |
| Laser 3E | 2006-02-22 to 2006-03-28 |
| Laser 3D | 2005-10-21 to 2005-11-24 |
| Laser 3C | 2005-05-20 to 2005-06-23 |
| Laser 3B | 2005-02-17 to 2005-03-24 |
| Laser 3A | 2004-10-03 to 2004-11-08 |

We will continue to receive other laser campaigns for Release-31 until all laser campaigns are reprocessed. But until then, Release-28, Release-29, and Release-31 will be available from NSIDC. Please see the release schedule for more information on currently available data (http://nsidc.org/data/icesat/current_release_schedule.html).

NOTE: Release-31 data should not be mixed with any other data release for science analysis. The DEM and geoid changes, as discussed below, manifest themselves in a number of ways including in the troposphere corrections, where they caused some significant centimeter level differences in the computed elevations.

This release includes several important changes to the processing code:

- The record index (*rec_ndx*) scale factor has been changed to avoid an October 2009 rollover. This means that the *rec_ndx* now increases by 5 rather than 10.
- An error corrected in the waveform Gaussian fit solution matrix resulted in minor changes to many fit parameters. The fit control parameters have been adjusted to recover more low signals for standard fit and fewer false signals for alternate fit.
- Several changes have been made to the elevation products, including the replacement of selected portions of the DEM and an update to the geoid.

- A fix was implemented to correct the utilization of the ancillary meteorological files.

For more information about all of the Release-31 changes, see the ICESat/GLAS Data Releases Web page (http://nsidc.org/data/icesat/data_releases.html).

For more info about ICESat/GLAS data, including ordering options, see the ICESat/GLAS Data page (<http://nsidc.org/data/icesat/>).

New Data Sets Available from AGDC

The Antarctic Glaciological Data Center (AGDC) at NSIDC is pleased to announce the release of new data sets related to ice core gases and snow processes.

- *Methane Isotopes from the WAIS Divide Ice Core* (NSIDC-0435)
- *Methane Measurements from the GISP2 and Siple Dome Ice Cores* (NSIDC-0440)
- *Collaborative Research: Laboratory Studies of Isotopic Exchange in Snow* (NSIDC-0445)

For more information about these data and other Antarctic data from AGDC, see the AGDC data catalog (<http://nsidc.org/agdc/data.html>).

AMSR-E/Aqua Global Daily Gridded Brightness Temperatures Data Update

Advanced Microwave Scanning Radiometer - Earth Observing System (AMSR-E)/Aqua global daily gridded brightness temperature data have been updated through December 2009. These include data in all three Equal-Area Scalable Earth-Grid (EASE-Grid) projections (North, South, and Global) as well as global quarter-degree latitude-longitude gridded data.

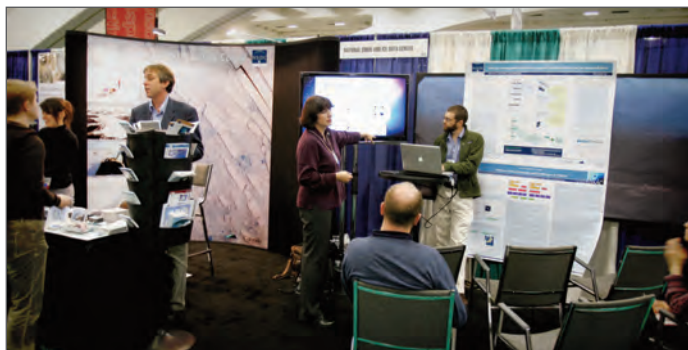
Please see the data set Web pages for further information and data access:

- *AMSR-E/Aqua Daily EASE-Grid Brightness Temperatures* (<http://nsidc.org/data/nsidc-0301.html>)
- *AMSR-E/Aqua Daily Global Quarter-Degree Gridded Brightness Temperatures* (<http://nsidc.org/data/nsidc-0302.html>)

All NSIDC DAAC Data Accessible through WIST

NSIDC is pleased to announce that all NSIDC DAAC data holdings can now be discovered through the Warehouse Inventory Search Tool (WIST). Previously, only DAAC EOSDIS Core System (ECS) data were included in this tool. For more information visit the WIST Web site (<https://wist.echo.nasa.gov/api>).

Fall AGU Report



NSIDC staff Kara Gergely, Mark Parsons, Mary Jo Brodzik, and Brendan Billingsley answer questions at the NSIDC booth during the 2009 AGU Conference in San Francisco.

NSIDC staff attended the 2009 Fall American Geophysical Union meeting held in San Francisco, CA, 14 to 18 December. Staff members enjoyed meeting new users and greeting familiar ones at our booth. More than 250 people visited the NSIDC booth in the exhibit hall. Thank you for stopping by.

During the conference, NSIDC scientists and staff presented more than fifty posters, oral presentations, and sessions. NSIDC Director Mark Serreze gave two invited lectures, one focusing on the future of the Arctic, and the other discussing how scientists can best communicate about global environmental problems such as climate change.

Another highlight of NSIDC's work at AGU was a well-attended data stewardship town hall meeting. "Peer-Reviewed Data Publication and Other Strategies to Sustain Verifiable Science," was hosted by staff from NSIDC and NASA's Jet Propulsion Laboratory. Bernard Minster of the Scripps Institute of Oceanography presented the newly revised AGU position statement on data, which calls for more open sharing of data, and endorses the concept of peer-reviewed data publication. NSIDC data scientists Mark Parsons and Ruth Duerr presented more information on data citation methods, and digital identifier technologies and uses. For a full description of the discussion that took place, visit the Interagency Data Stewardship/2009 AGU Town Hall Web site (http://wiki.esipfed.org/index.php/Interagency_Data_Stewardship/2009AGUTownHall).

A full list of NSIDC presentations at AGU is available on the NSIDC Web site (http://nsidc.org/news/events/agu_2009/).

Personnel

Arrivals

Peter Pulsifer Postdoctoral Scientist

Departures

I-Pin Wang Database Administrator
 Eliot Lee Web Administrator

The LARISSA Project Crossword Puzzle

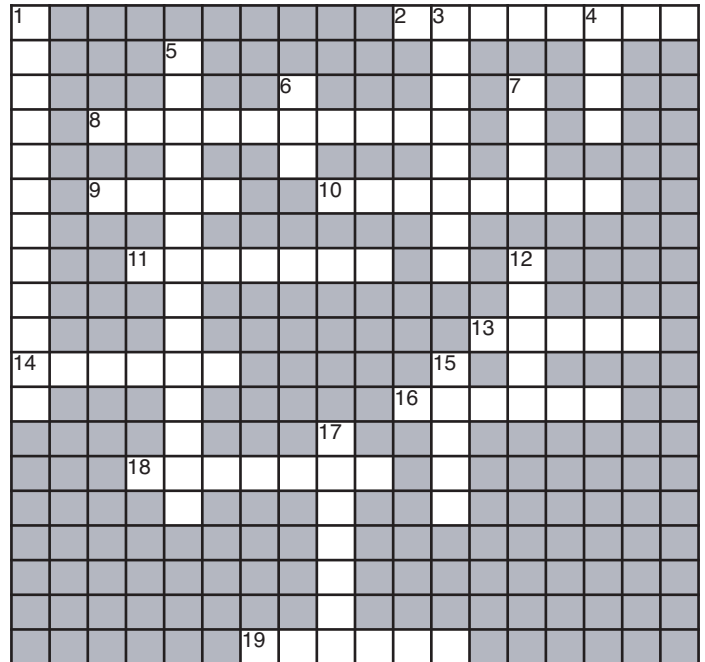
To complete the puzzle, visit the Larissa Project blog at <http://iceshelf.wordpress.com>

ACROSS

2. If you travel to Antarctica through Christchurch, New Zealand, you have to find the statue of this famous polar explorer and rub his nose.
8. This glacier science education program for high school girls was founded by a member of the LARISSA Glacier Team.
9. Last name of person who designed and built the AMIGOS system.
10. Name of the island where Rothera Station is located.
11. A huge portion of this ice shelf disintegrated in March 2002, and is the subject of the LARISSA Project.
13. Stormy weather in this passage made everyone sea sick.
14. A heavily-instrumented data collection station, sort of a super weather station with a GPS, camera, and other instruments.
16. The cheerful and lively kitchen and maintenance staff at the Rothera Station.
18. NSIDC Lead Scientist on the LARISSA Project.
19. A collection of loose, randomly oriented needle-shaped ice crystals in water. It resembles slush and has the appearance of being slightly oily.

DOWN

1. When Scambos, Pettit, and Truffer were stuck on Flask Glacier, Scambos likened the repetitive days to this movie.
3. For good luck in Antarctica, you must rub the brass toe of one of the figures on this Portuguese explorer's statue, found in Punta Arenas.
4. Scambos described Weddell and Crabeater seals as puppy-like and _____.



5. A large interdisciplinary, multi-institute, NSF-funded study to explore every aspect of the Larsen Ice Shelf region.
6. First name of the N.B. Palmer's captain.
7. Native of Thailand, also the first name of the camp manager at Dr. Ellen Mosely-Thompson's ice core camp.
12. This person body-surfed the Bruce Plateau.
15. The "R" in IPR.
17. British research station on the Antarctic Peninsula.

CITING NSIDC DATA

Please acknowledge NSIDC as the source when you obtain data from us. Refer to the data set documentation for suggested forms of acknowledgement and citation, or contact User Services for more information.

NSIDC also requests one reprint or the exact reference of any publication that was supported by data received from NSIDC. We also greatly appreciate reprints of any publication related to snow and ice research, for inclusion in the World Data Center Information Center collection.

If you have published data that you wish to archive and make available to the scientific community, please contact User Services to discuss the content, form, and size of the data set. A list of guidelines for submitting data in electronic format is available.

SUBSCRIPTION, SUBMISSION & CONTACT INFORMATION

For information about any of the products or services offered by NSIDC, or to subscribe to NSIDC Notes, please contact User Services.

NSIDC welcomes the submission of short items from our readers that are of interest to the cryospheric community. Please use the following address to submit news items, publication notes, research notices, or brief articles for publication in NSIDC Notes.

View back issues on the NSIDC Web site (<http://nsidc.org/pubs/notes/>).

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